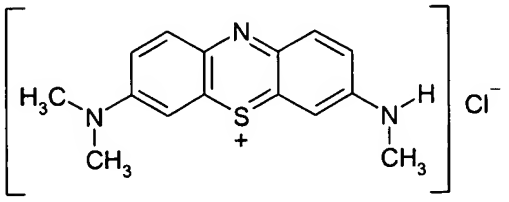
AMENDMENTS TO THE CLAIMS

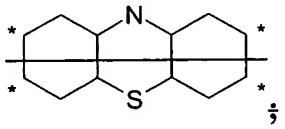
Listing of Claims:

1. (Currently Amended) A method of [^{11}C]-radiolabelling a phenothiazine compound of the following formula:



~~, wherein:~~

~~said compound has a polycyclic core of the following formula:~~



~~said polycyclic core is fully aromatic~~;

~~said compound has a pendant group covalently attached at one of the positions denoted by asterisks (*) in the above formula~~;

~~said pendant group is independently~~:

~~a primary amino group;~~

~~a cationic primary imino group;~~

~~a secondary amino group;~~

~~a cationic secondary imino group;~~

~~a primary imino group; or~~

~~a secondary imino group;~~

said method comprising the step of[[:]] reacting said phenothiazine compound with [^{11}C]methyl trifluoromethanesulfonate ($CF_3SO_2O^{11}CH_3$) in the presence of a Bronsted base

~~; thereby converting said pendant group to a corresponding [^{11}C]methyl-labelled pendant group, respectively~~:

~~a [^{11}C]methyl-labelled secondary amino group;~~

~~a [^{11}C]methyl-labelled cationic secondary imino group;~~

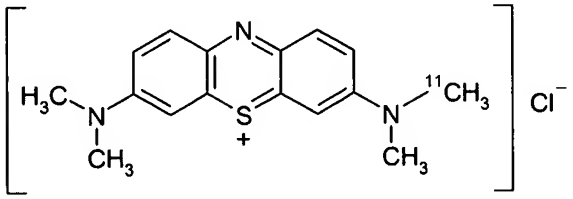
~~a [^{11}C]methyl-labelled tertiary amino group;~~

~~a [^{11}C]methyl-labelled cationic tertiary imino group;~~

~~a [^{11}C]methyl-labelled secondary imino group; or~~

~~a [^{11}C]methyl-labelled cationic tertiary imino group;~~

to give a [^{11}C]-radiolabelled phenothiazine compound of the following formula:



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2-92 (Cancelled)

93. (Currently Amended) A method according to claim 1, wherein said Bronsted base is ~~reaction is performed in the presence of~~ an alkali metal carbonate or bicarbonate.

94. (Currently Amended) A method according to claim 1, wherein said Bronsted base is ~~reaction is performed in the presence of~~ potassium carbonate.

95. (Previously Presented) A method according to claim 1, wherein said reaction is carried out in aqueous media.

96. (Currently Amended) A method according to claim 1, wherein said reaction is carried out by introducing said [^{11}C]methyl trifluoromethanesulfonate into an aqueous solution or

suspension of said phenothiazine compound and said Bronsted base, to form a reaction mixture.

97. (Cancelled)

98. (Currently Amended) A method according to claim 96, wherein said Bronsted base is ~~aqueous solution or suspension further comprises~~ an alkali metal carbonate or bicarbonate.

99. (Currently Amended) A method according to claim 96, wherein said Bronsted base is ~~aqueous solution or suspension further comprises~~ potassium carbonate.

100. (Previously Presented) A method according to claim 96, wherein said reaction mixture is mixed for a mixing time of 1-30 minutes.

101. (Previously Presented) A method according to claim 96, wherein said reaction mixture is mixed for a mixing time of 1-10 minutes.

102. (Previously Presented) A method according to claim 96, wherein said reaction is carried out at 20°C-25°C.

103. (Previously Presented) A method according to claim 96, wherein said reaction is carried out under an inert atmosphere.

104. (Previously Presented) A method according to claim 96, wherein said reaction is carried out under argon.

105. (Currently Amended) A method according to claim 96 ~~1~~, further comprising the subsequent step of [[:]] purifying said [^{11}C]-radiolabelled phenothiazine compound.

106. (Currently Amended) A method according to claim 96 ~~1~~, further comprising the subsequent step of [[:]] purifying said [^{11}C]-radiolabelled phenothiazine compound using ion exchange methods.

107. (Currently Amended) A method according to claim 96 ~~1~~, further comprising the subsequent step of [[:]] purifying said [^{11}C]-radiolabelled phenothiazine compound using cation exchange methods.

108. (Currently Amended) A method according to claim 105 ~~1~~, wherein the reaction and ~~optional~~ purification is performed in less than 60 minutes.

109. (Currently Amended) A method according to claim 105 ~~1~~, wherein the reaction and ~~optional~~ purification is performed in less than 45 minutes.

110. (Currently Amended) A method according to claim 105 ~~1~~, wherein the reaction and ~~optional~~ purification is performed in less than 40 minutes.

111. (Currently Amended) A method according to claim 105 ~~1~~, which provides a radiochemical purity greater than 90%.

112. (Currently Amended) A method according to claim 105 ~~1~~, which provides a radiochemical yield of at least 2%.

113. (Currently Amended) A method according to claim 105 ~~1~~, which provides a specific average activity of at least 0.5 GBq/μmol.

114. (Currently Amended) A method according to claim 105 ~~1~~, which is partially or fully automated.

115- 125 (Cancelled)